

THE NATIONAL FLOOD INSURANCE PROGRAM AND CLIMATE CHANGE:
INCREASING COMMUNITY RESILIENCE THROUGH FLOOD MITIGATION

by
Laura McDaniel

A capstone project submitted to Johns Hopkins University in conformity with the
requirements for the degree of Master of Arts in Public Management

Baltimore, Maryland
May, 2019

© 2019 Laura McDaniel
All Rights Reserved

Abstract

Enacted into law in 1968, the National Flood Insurance Program (NFIP) provides thousands of homeowners, businessowners, and communities with insurance in the event of a flood. The program goals are to provide primary flood insurance and funding for mitigation activities. Presently, the program is over \$20 billion in debt with a probable maximum annual loss of \$40 billion. On May 31, 2019 the current funding authorization for the program is due to expire and be reduced to \$1 billion.

As climate change affects weather patterns and the severity of storms and physical development changes landscapes, they also increase exposure to flood risk. To manage future debt and adapt to a changing climate, Congress needs to bolster mitigation efforts by increasing support for flood mitigation activities. Floodplain management, repairs to repetitive loss properties, improved mapping, and ongoing support for comprehensive, community-level risk management would reduce flood-related disasters. A revolving loan fund for flood mitigation could achieve these aims. Creating a loan fund would increase consumer awareness of flood risk, reduce damage after major flood events, and increase community resiliency in a changing climate.

List of Charts

Chart 1 - NFIP Key Figures in Q1 2019	3
--	----------

List of Tables

Figure 1 - FEMA Hazard Mitigation and Grant Programs Severe and Repetitive Loss Properties	5
Figure 2 – Federal Disaster Assistance Programs Prioritize Immediate Needs	21
Figure 3 – Natural Disasters Lead to Decline in Credit Scores	22
Figure 4 – Credit Score Declines are Higher in Communities of Color Hit By Medium-Sized Disasters	22
Figure 5 – Financial Hardship Increases Over Time in Communities of Color Hit By Medium-Sized Disasters	23
Figure 6 – Support Extends Across Party Boundaries	26
Figure 7 – Disclosure Proposal – by Own/Rent and Flood Insurance	26
Figure 8 – How Have You Been Affected By Flooding?	27

MEMORANDUM

To: Mark Powden, Minority Staff Director, Senate Banking, Housing, and Urban Affairs Committee

From: Laura McDaniel

Date: May 7, 2019

Action Forcing Event

February 11, 2019, the state of Mississippi sued the federal government for \$25 million due to the rerouting of the Mississippi of the Old River Control Structure in Louisiana.¹ They contend it amounts to a taking of land because landowner's property is rendered useless through flooding. The case highlights the need for reforms to the National Flood Insurance Program to address issues of land and water rights, access to clean water, and increased flood risk.

Statement of the problem

The National Flood Insurance Program (NFIP) is an increasingly unsustainable program to subsidize flood insurance for consumers across the United States. Authorized in the National Flood Insurance Act of 1968, the program had remained solvent throughout most of its over 50-year history. Population increases in coastal areas, outdated flood zone mapping, low take-up rates, lack of consumer education, and increased instances of extreme rain and flood events in the period following its inception have underscored weaknesses in the program's original design. Of the 1,743 Presidential Disaster Declarations between 1980 and 2017, over 80% were "tied to floods and flood-related events such as hurricanes and severe storms."² As the effects of climate change affect weather patterns, "climate-induced

¹ Amy, Jeff. 2019. "Mississippi Sues Federal Government Over River Flooding." Associated Press, February 11. https://www.washingtonpost.com/national/mississippi-sues-federal-government-over-river-flooding/2019/02/11/31838eec-2e25-11e9-8781-763619f12cb4_story.html?noredirect=on&utm_term=.2338fc26a9db.

² Kunreuther, Howard, et al. 2018. "Flood Risk and the U.S. Housing Market" *University of Pennsylvania - Risk Management and Decision Processes Center*, 2018a), 1482.

changes in rainfall patterns are projected to lead to increasing flooding in certain parts of the United States.”³ The current configuration of the NFIP is not adaptable enough to absorb the increase in flood events expected to occur with climate change.

The current authorization of the NFIP is due to expire on May 31, 2019. Presently, the NFIP may borrow up to \$30.425 billion from Treasury.⁴ That total amount is due to decrease to \$1 billion when the current authorization expires on May 31, 2019. As a result of natural disasters beginning with Hurricane Katrina, Congress increased the NFIP’s borrowing authorization from Treasury and once canceled its debt.

After Hurricane Katrina, the NFIP was \$18 billion in debt and had its borrowing cap raised to \$20.775 billion.⁵ In 2016, the NFIP owed Treasury over \$20 billion in debt without a means of repaying it in the near-term.⁶ The following year, Congress “canceled \$16 billion of NFIP debt, making it possible for the program to pay claims for Hurricanes Harvey, Irma, and Maria.”⁷ While Congress raised the NFIP’s borrowing authority in 2012 and 2014, the unusual move in 2016 to cancel its debt marked a new low in the program’s history. As of January 2019, the program had approximately \$9.9 billion of borrowing authority.⁸ As of first quarter 2019, the program has an estimated annual loss of more than \$40 billion and

³ 11155 ■ *University of Pennsylvania - Risk Management and Decision Processes Center*, 2018a), 1482.

⁴ Michael Campana, “CRS Report: ‘Introduction to the National Flood Insurance Program (NFIP),’” ACI Information Group, <http://scholar.aci.info/view/14b08e8e9b200150009/15db4a6393b0001d00788c7>

⁵ Scott Gabriel Knowles and Howard C. Kunreuther, “Troubled Waters: The National Flood Insurance Program in Historical Perspective,” *Journal of Policy History* 26, no. 3 (2014), 327-353. doi:10.1017/S0898030614000153.

<http://search.ebscohost.com/login.aspx?direct=true&db=asn&AN=96390324&site=ehost-live&scope=site>.

⁶ Carolyn Kousky, *Financing Flood Losses: A Discussion of the National Flood Insurance Program*, [2017]).

⁷ (Campana 24)

⁸ Ibid.

over \$20 billion of debt with Treasury.⁹ Interest payments to Treasury are greater than \$400 million per year.¹⁰ The chart below shows the financial position of the NFIP as of Q1 2019:

Chart 1 NFIP Key Figures in Q1 2019¹¹

Item	Total
Insurance in Force	\$1.3 trillion
Probable Maximum Annual Loss	\$40 billion
Average Annual Premium	\$701
Outstanding Debt to Treasury	\$20.5 billion
Interest Paid since Katrina	\$4.2 billion

As the chart above demonstrates, massive debt coupled with inadequate borrowing authority create a bleak financial future for the NFIP. Annual premiums remain low to encourage consumers to purchase them. However, they do not cover the actual price of the program. Increased occurrences of high-cost flood events diminish the ability of the NFIP to provide adequate relief.

Accurate flood mapping and consumer take-up rates are two critical factors affecting the future solvency of the program. Due to the structure of the program, the "NFIP's debt is conceptually owed by current, and future participants...as the insurance program itself owes the debt to the Treasury and pays for accruing interest on that debt through the premium revenues of policyholders."¹² Outdated mapping data and methods used for flood mapping

⁹ Federal Emergency Management Administration, Federal Insurance & Mitigation Administration (2019). *The Watermark, Fiscal Year 2019, First Quarter*. Retrieved from FEMA https://www.fema.gov/media-library-data/1522167351921-a5e457454262dd100e2f15a7210d21c5/Watermark_FY18_Q1_v6_508.pdf

¹⁰ Ibid.

¹¹ Ibid.

¹² (Campana 24)

prevent consumers from accurately assessing their flood risk and purchasing flood insurance or taking other flood prevention or mitigation precautions.

In 2013, Highfield, Norman, and Brody discussed ways in which how flood risk is communicated influences consumer and policymaker risk perception. The 100-Year floodplain metric first came into use in 1973 and was used to convey flood risk. The term is commonly misunderstood as a flood that will occur once in 100 years. However, it means there is a 1% chance a flood of a particular magnitude will occur in a given year. Homeowner's with a 30-year mortgage have a 25% chance that they will experience a flood of that magnitude in 30 years. As climate change creates more extreme flood events and development changes the landscape¹³, the probability of flooding increases.

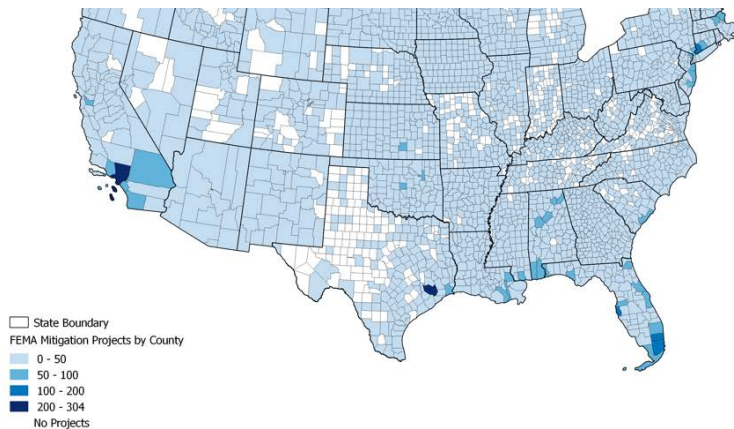
Consumer misperceptions about risk and rising costs of the NFIP converge on repetitive loss properties. Repetitive loss properties are “any insurable building or which two or more claims of more than \$1,000 were paid by the NFIP within any rolling 10-year period since 1978.”¹⁴ Severe repetitive loss properties “are those for which the program has either made at least four payments for buildings and/or contents of more than \$5,000 or at least two building- only payments that exceeded the value of the property.”¹⁵ The map below shows where FEMA Hazard Mitigation Assistance grant programs are funding projects across the country and the number of projects in each state.

¹³ Samuel D. Brody and Wesley E. Highfield, "Open Space Protection and Flood Mitigation: A National Study," *Land Use Policy* 32 (May, 2013), 89-95. doi:10.1016/j.landusepol.2012.10.017. <https://www.sciencedirect.com/science/article/pii/S0264837712002050>.

¹⁴ Ibid 189.

¹⁵ Phyllis Cuttino, "Repeatedly Flooded Properties Cost Billions," Pew Charitable Trusts. (October 2016). https://www.pewtrusts.org/~media/assets/2016/10/repeatedly_flooded_properties_cost_billions.pdf?la=en

Fig. 1



16

Use of the 100-year floodplain boundaries can limit the ability of a community to assess its risk. A large percentage of repetitive losses from floods occur outside Special Flood Hazard Area boundaries¹⁷ Since flood risk is commonly communicated as binary, consumers and policymakers do not fully understand their true exposure to risk. Repetitive loss properties are growing by about 5,000 properties per year and cost the NFIP over \$12.5 billion.¹⁸ They account for roughly 1% of NFIP policies and 25-30% of flood claims.¹⁹

¹⁶ Federal Emergency Management Administration. OpenFEMA Dataset: Hazard Mitigation Assistance Projects -V1. Public Use data file and documentation. <https://www.fema.gov/openfema-dataset-hazard-mitigation-assistance-projects-v1>. November 2018.

¹⁷ Brody and Highfield, "Open Space Protection and Flood Mitigation: A National Study," *Land Use Policy* 32 (May, 2013), 89-95. doi:10.1016/j.landusepol.2012.10.017. <https://www.sciencedirect.com/science/article/pii/S0264837712002050>.

¹⁸ Phyllis Cuttino, "Repeatedly Flooded Properties Cost Billions," Pew Charitable Trusts. (October 2016). https://www.pewtrusts.org/~media/assets/2016/10/repeatedly_flooded_properties_cost_billions.pdf?la=en

¹⁹ Ibid.

Despite the prevalence of floods, consumers often consider their flood risk in binary terms and fail to recognize their actual exposure to risk. Several cognitive biases affect consumer risk perception, resulting in a failure to purchase flood insurance. They include myopia, amnesia, optimism, inertia, simplification and herding listed in the table below:

“1. Myopia	The tendency to focus on overly short future time horizons when appraising immediate costs and the potential benefits of protective investments.
2. Amnesia	The tendency to quickly forget the lessons of past disasters.
3. Optimism	The tendency to underestimate the likelihood that losses will occur from future hazards.
4. Inertia	The tendency to maintain the status quo or adopt a default option when there is uncertainty about the potential benefits of investing in alternative protective measures.
5.Simplification	A tendency to selectively attend to only a subset of the relevant facts to consider when making choices involving risk.
6. Herding	The tendency to base choices on the observed actions of others.” ²⁰

These cognitive biases primarily affect decision-making as more frequent extreme rain, and other weather events raise the risk of flood damage in areas historically unaffected by flood damage. Flood risk is most often considered in the wake of a significant flood without ongoing evaluation of risk over time. As amnesia suggests, people in areas affected by floods, unless they are severe, quickly forget lessons learned in the past. This failure to acknowledge risk among consumers and communities affects their ability to prepare for flood events adequately. Only "approximately 20 percent of homes in areas affected by Hurricane Harvey

²⁰ Kunreuther, Howard, et al. 2018. *“Flood Risk and the U.S. Housing Market”* ■ *University of Pennsylvania - Risk Management and Decision Processes Center*, 2018a), 1482.

had flood insurance.”²¹ This lack of preparation exposes individual consumers and their communities to more health, financial, and economic risks when disasters occur.

History and Background

Depression Era and Post-War Context

A series of natural disasters during the interwar period and again in the early 1960s created the impetus to more thoroughly address the issues of disaster preparedness and floods. Throughout the period, a tension existed between how to define disasters and which members of society were genuinely worthy of aid from the Federal Government. The primary source of this tension was the perceived worthiness of the recipients, similarly to other welfare state programs, and their responsibility for their plight.

During the interwar period, the economic disaster of the Depression spurred the government to expand government support for average citizens through the New Deal and the creation of the Social Security Administration among other initiatives. Roosevelt's sincere belief in the right of all citizens to pursue their full potential was outlined in his Second Bill of Rights. While he was not an egalitarian, he did promote programs, like those of the New Deal, that allowed people at all levels of society. The expansion of the welfare state in the interwar period and subsequent legislation, such as the GI Bill of 1944, changed the American understanding of the distinction between federal, private, and local aid.

During the Cold War, much of disaster preparedness focused on nuclear war. Several natural disasters, including the first billion-dollar natural disaster, refocused attention from the existential threat of communism to the immediate threats of earthquakes, floods, and hurricanes. Thus, in 1968 Congress established the National Flood Insurance Program

²¹ Kunreuther, Howard, et al. 2018. “*Flood Risk and the U.S. Housing Market*” ■ *University of Pennsylvania - Risk Management and Decision Processes Center*, 2018a), 1482.

within the Department of Housing and Urban Development. With an increasingly professional workforce, the program began taking a strategic approach to managing flood risk nationwide. Throughout the 20th century, the government shifted from a flood prevention focus to a “flood risk reduction and mitigation”²² approach. Initially, the government took a structural approach to mitigation. By the end of the 20th century, non-structural or green infrastructure approaches became more common. They often mimicked the nature and provided benefits along multiple dimensions, such as “erosion reduction, fish habitat and water quality benefits.”²³

As Michele Landis Dauber notes, disaster recovery is not commonly considered part of the welfare state in the United States, though many of the same considerations that apply to extending aid to needy citizens apply to disaster relief. She says,

"scholars have long noted that in the American context, unlike in more egalitarian European systems, the welfare state takes a weak form based on classical liberalism with its reliance on markets. Universalistic criteria such as citizenship, status, and even need may be insufficient to determine eligibility for state benefits" and "the boundary between natural and man-made events has proven in practice to be of only secondary importance to decisions about whether to provide disaster relief."²⁴

The source of the disaster, in Dauber's view, is of less importance in the American context than the perceived responsibility of the persons seeking aid. This question of responsibility and worthiness requires the disaster victim to establish that their circumstances were entirely out of their control in order to be worthy of aid. She says, "We have one logic that sorts claimants into more or less generous systems depending on their ability to demonstrate that

²² *Flood Resilience and Risk Reduction: Federal Assistance and Programs*. CRS Report, 2018b).
https://congressional.proquest.com/legisinsight?id=CRS-2018-CRS-184004&type=MISC_PUB.

²³ Ibid 6.

²⁴ Michele Landis Dauber, *The Sympathetic State* (Chicago ;London: University of Chicago Press, 2013).
<http://JHU.ebib.com/patron/FullRecord.aspx?p=1051410>.

their deprivation is not their own fault."²⁵ While the two systems exist simultaneously, the same people can experience different outcomes based on the perceived origin of their distress.

Dauber provides the example of Hurricane Katrina to demonstrate the effects of perception of the worthiness of disaster victims within the United States. She notes that "What changed with Hurricane Katrina was not the people, but their ability to portray themselves as the victims of circumstances beyond their control" and that Katrina showed "that a disaster can temporarily enable even a disadvantaged group to successfully claim large-scale resources while leaving undisturbed their inability to receive help for their chronic condition."²⁶ The same poor black residents of New Orleans who were able to receive \$2,000 debit cards as disaster relief were still denigrated when they were unable to bring themselves out of poverty despite years of welfare benefits. Portraying a disaster as natural in origin, despite human contributions to the events, increases the likelihood that a person will receive assistance in the United States.

National Flood Insurance Act of 1968

A series of costly natural disasters paired with a new emphasis on environmental science created political conditions favorable to established the National Flood Insurance Program. These included several disasters in the spring of 1964, such as the Alaska Earthquake and Hurricane Betsy of 1965, the nation's first billion-dollar natural disaster. Where previously each disaster received funding on a case by case basis, the growing professionalization of the government workforce, focus on disaster preparedness, and advances in environmental science made it possible for legislators to pursue a different

²⁵ Ibid., 15.

²⁶ Ibid.

approach. Through the National Flood Insurance Act of 1968 Congress sought to meet the following two goals:

"1.) to provide access to primary flood insurance, thereby allowing for the transfer of some of the financial risk of property owners to the federal government, and 2.) to mitigate and reduce the nation's comprehensive flood risk through the development and implementation of floodplain management standards."²⁷

The program was initially intended to be dynamic and change in conjunction with risk and the greater availability of information. In the Act, Congress justified creating the NFIP stating,

"The Congress finds that (1) from time to time flood disasters have created personal hardships and economic distress which have required unforeseen disaster relief measures and have placed an increasing burden on the Nation's resources; (2) despite the installation of preventive and protective works and the adoption of other public programs designed to reduce losses caused by flood damage, these methods have not been sufficient to protect adequately against growing exposure to future flood losses; (3) as a matter of national policy, a reasonable method of sharing the risk of flood losses is through a program of flood insurance which can complement and encourage preventive and protective measures; and (4) if such a program is initiated and carried out gradually, it can be expanded as knowledge is gained, and experience is appraised, thus eventually making flood insurance coverage available on reasonable terms and conditions to persons who have need for such protection." (42 U.S.C. 4001 Sec. 1301)

The federal government recognized the simultaneous need to guard against costly floods in the short run and comprehensively address land use and the human-made factors contributing to flood risk by taking a more strategic approach to the problem. The chaotic spending of a post-disaster period was not financially sustainable for the federal government. Also, there was a greater need for property owners to become aware of their risk of flood damage.

The structure represents a compromise between increasing access to federally subsidized flood insurance, where once it was only privately available, and adequate floodplain management. Gilbert White headed the task force charged with investigating the issue before the creation of the bill and is largely credited with laying the foundation for taking a comprehensive approach to flood management. He was concerned with the ultimate

²⁷ Michael Campana, "CRS Report: 'Introduction to the National Flood Insurance Program (NFIP),' " ACI Information Group, <http://scholar.aci.info/view/14b08e8e9b200150009/15db4a6393b0001d00788c7>

dual mandate of the program and lack of adequate emphasis on taking a holistic approach rather than transferring risk. He found that

“such attention given nationally to federally subsidized flood insurance would divert attention from the broader goal of his task force recommendations: a ‘unified national program’ for managing not only flood loss/flood control but also floodplains as ecosystems.”²⁸

He accurately assessed the risk of examining the issue too narrowly and foresaw some of the problems that would arise in the future of the program. At the outset, the NFIP was a voluntary program that progressively began to be mandatorily applied to more properties through a series of legislation. In the first 30 years of the program, lawmakers strengthened its enforcement, the private industry received the incentive to participate in the market through the Write-Your-Own (WYO) program, the Community Rating System was established, and the program moved from HUD to FEMA.

1973 to Hurricane Katrina

Throughout its first 30 years, Congress ably adjusted the NFIP to meet its intended purpose. The Flood Disaster Protection Act of 1973 further strengthened the NFIP. Most notably, the Act created mandatory coverage for borrowers in specified areas with heightened flood risk. What had once been an entirely voluntary program with relatively low take-up rates was expanded to a higher number of consumers.

The 1973 Flood Disaster Protection Act created significant changes to coverage for individuals and communities. Perhaps the most considerable change to the NFIP in the Act was the requirement that federally backed mortgages in Special Flood Hazard Areas (and Coastal Barrier Resource Systems through the Coastal Barrier Resources Act of 1982)

²⁸ Scott Gabriel Knowles and Howard C. Kunreuther, "Troubled Waters: The National Flood Insurance Program in Historical Perspective," *Journal of Policy History* 26, no. 3 (2014), 327-353. doi:10.1017/S0898030614000153. <http://search.ebscohost.com/login.aspx?direct=true&db=asn&AN=96390324&site=ehost-live&scope=site>.

purchase flood insurance. Communities in Special Flood Hazard Areas became eligible for disaster assistance if they participated in the NFIP. The 1973 Act required that

"Each Federal entity for lending regulation...shall by regulation direct regulated lending institutions not to make, increase, extend, or renew any loan secured by improved real estate or a mobile home located or to be located in an area that has been identified by the Director as an area having special flood hazards and in which flood insurance has been made available under the National Flood Insurance Act of 1968 [42 U.S.C. 4001 et seq.], unless the building or mobile home and any personal property securing such loan is covered for the term of the loan by flood insurance in an amount at least equal to the outstanding principal balance of the loan or the maximum limit of coverage made available under the Act with respect to the particular type of property, whichever is less."²⁹

Thus the NFIP now applied to many more homeowners and provided an incentive for communities to engage in what had once been an entirely voluntary program. Later updates and reauthorizations of the program with newer mapping would allow for grandfathering of properties where it would otherwise be too burdensome for property owners to pay for flood insurance premiums. The grandfathering of the subsidy, however, would go on to plague the program in the future as properties in flood-prone areas or repetitive loss properties would drain funding from the program.

The Reagan administration sought to increase private investment through the Write-Your-Own (WYO) program allowing private insurance companies to write and service flood insurance policies and receive payment for expenses. George H.W. Bush's administration followed that with the creation of the Community Rating System, which rewards communities for their floodplain management efforts. The Clinton administration's Flood Insurance Reform Act of 1994 furthered some of the updated provisions in the 1973 Act. Overall, legislators were able to successfully manage and refine the program in its first 30 years.

Policy Proposal

²⁹ 42 U.S.C. § 4012a Sec 102

While the perils of sea level rise and flooding from natural disasters, such as hurricanes, receive much attention on the coasts, inland states face the threat of flooding as well. Creating a revolving loan fund for funding flood mitigation activities would be to the benefit of all states. Availability of the funding could create the political will for improved floodplain management and disaster planning.

As the May 31st deadline approaches, so does the spring flood season. Over the past ten years, springtime has seen the vast majority of flood events. Most of these occurred in inland states. As legislators consider the reauthorization of the NFIP it is imperative that they consider the issue of flooding comprehensively and recognize that it occurs in many different types of communities across the country.

The purpose of this policy proposal is to protect communities from the adverse effects of flooding over the long-run. This proposal is intended to focus on the flood mitigation aspects of the National Flood Insurance Program. While there are several critical components of the NFIP that need examination in order for the program to function in the future, flood mitigation has the potential to decrease costs significantly to the federal government over time. Investing in and emphasizing flood mitigation more firmly within the NFIP will ultimately make communities more resilient and save money for individual homeowners, business owners, state, federal, and municipal governments. This proposal supports H.R. 1610 the State Flood Mitigation Revolving Fund Act of 2019 co-sponsored by Representatives Charlie Crist (D-FL) and Roger Williams (R-TX).

Description of the Act:

The State Flood Mitigation Revolving Fund Act would create a partnership between the states and the federal government through FEMA to combat the issue of flooding. Homeowners, non-profits, communities, and small business owners would receive low-

interest loans through their state revolving loan funds. Ultimately, the program would have the effect of lowering insurance premiums, protecting repetitive loss properties, and preparing communities before disaster strikes. The program design would be similar to the Clean Water State Revolving Fund of 1987 and likely to see an even higher return on investment. The Clean Water State Revolving Fund (CWSRF) requires a 20% match from the states and the funds "[can] support many financial assistance options including loans, the purchase of debt obligations to use as pledged security for municipal bond transactions, financial guarantees, and investment."³⁰

According to Congressman Charlie Crist, over its 30-year span, the CWSRF has "leveraged \$42 billion in federal funds for \$126 billion worth of clean water infrastructure"³¹, and the flood revolving loan fund could achieve something similar. Recent research from the National Institute of Building Sciences shows that for every \$1 of investment in hazard mitigation there is \$6 return³². This research suggests that investment in flood mitigation could be an effective method of not only preparing communities but also lessening the burden of the costs of floods in the future.

Existing Similar Acts:

The proposed revolving loan fund offers an opportunity to replicate an existing, successful program while reducing the risk for the federal government by requiring a match from the states. The states would receive an incentive to prepare for disasters and consider

³⁰ Céline Kauffmann, "Financing Water Quality Management," *International Journal of Water Resources Development* 27, no. 1 (Mar 1, 2011), 83-99. doi:10.1080/07900627.2010.531377. <http://www.tandfonline.com/doi/abs/10.1080/07900627.2010.531377>.

³¹ Laura Lightbody, "State Revolving Loan Fund Gains Momentum in Congress," <https://pew.org/2L91hlF> (accessed Apr 1, 2019).

³² NATURAL HAZARD MITIGATION SAVES: An Independent Study and to Assess the Future Savings from Mitigation Activities, *NATURAL HAZARD MITIGATION SAVES: An Independent Study to Assess the Future Savings from Mitigation Activities*, Vol. 2.

their risk comprehensively by engaging in mitigation activities. There are, however, two existing programs to fund mitigation activities. The Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Grant Program are two such grant programs. There is the potential for the three programs to conflict since they would each deal with similar issues. The Hazard Mitigation Program, authorized under the Stafford Act of 1988, is available solely for post-disaster relief. The Pre-Disaster Mitigation Grant Program, also authorized under the Stafford Act, has been perpetually underfunded.

Cost:

Congressman Crist sent members of Congress a Dear Colleague letter outlining the proposed funding structure of the program. In the letter, he proposes a cost structure for the program. In the letter, he says,

“fifty-percent (50%) of the federal funds is allocated proportionately based on the number of NFIP policies held in each eligible state. The other fifty-percent (50%) is allocated based on the relative average premium paid in each eligible state. Any state that receives less than \$4 million in funding is not required to establish a revolving loan fund, but can instead use their funding as grants for flood mitigation projects.”³³

While the cost structure for the program is outlined, no fixed sums for the total cost of the revolving loan fund exist. Among the states, there is no comprehensive data on how much each state is spending on mitigation activity.³⁴ An understanding of each state's flood

³³ Crist, Charlie. *Dear Colleague Letter, “Boost Mitigation and Bring Down the Cost of Flood Insurance by Co-sponsoring the Bipartisan State Flood Mitigation Revolving Fund Act.”* October 24, 2018. <http://dearcolleague.us/2018/10/boost-mitigation-and-bring-down-the-cost-of-flood-insurance-by-co-sponsoring-the-bipartisan-state-flood-mitigation-revolving-fund-act-2/>

³⁴ Leiseca, Sarah. “*Natural Disaster Mitigation Spending Not Comprehensively Tracked*,” Pew Charitable Trusts Brief. September 2018. Retrieved from pewtrusts.org/fiscal-federalism.

mitigation spending would be needed in order to determine full costs for the program. With that data, the actual cost and long-term feasibility of the program could be quantified.

Equity Issues:

If signed into law, this bill has the potential to substantially overhaul an often overlooked aspect of natural disasters: mitigation. If applied equitably, it can result in safer, healthier, more resilient communities across the United States and Puerto Rico. However, as a disaster recovery tool, its application requires scrutiny. Historically, disaster recovery, particularly loans, have favored wealthier people and communities. That severely diminishes the ability of disinvested communities to recover from an individual disaster and withstand disasters in the future.

Howell and Elliott find that "differential access to government assistance, differential disruption to housing and income, and unequal opportunities to tap into substantial flows of recovery capital that stream into damaged areas, regardless of whether one is immediately affected or not"³⁵ significantly impact how more impoverished communities and communities of color rebound from natural disasters. Other disaster recovery programs authorized in the Stafford Act do effectively further some of this inequality in an attempt to mitigate fraud. A report from the New York Attorney General chronicling the aftermath of Superstorm Sandy found that fraud claims, however, are often related to structural issues with the NFIP. These include "a lack of clarity in the scope of the policy coverage," "inadequate training and lack of certification requirements for structural engineers," and

³⁵ Junia Howell and James R. Elliott, "As Disaster Costs Rise, so does Inequality," *Socius* 4 (Dec, 2018), 237802311881679. doi:10.1177/2378023118816795.
<https://journals.sagepub.com/doi/full/10.1177/2378023118816795>.

poor administration of the program.³⁶ As a disaster recovery and preparedness program, the revolving loan fund would need to be structured such that it does not replicate those inequities.

Policy Analysis -

The purpose of the policy proposal is to protect communities from the adverse effects of flooding over the long-run. The State Flood Mitigation Revolving Fund's effectiveness would be measured two-fold. The first is that it would need to demonstrate that the fund decreased the number of reported repetitive loss properties. Participation in the program would release funds into communities to engage in floodplain management activities, community planning, and make physical development improvements to decrease the impact of floods. Secondly, the program would be measured in how equitably the funds were distributed. While the Act is modeled after the Clean Water State Revolving Fund and estimated to have a \$6:\$1 return on investment, it is imperative that the investment does not exacerbate existing inequalities.

Equitable distribution of disaster recovery funds is one of the emerging issues of disaster preparedness and recovery efforts. As weather-related disasters become simultaneously more frequent and more extreme, the insidious effects of inequality become more salient. Communities without adequate access to emergency services, banks, political institutions, safe, healthy housing, and clean water and transportation infrastructure suffer when tragedy strikes. Repeated disasters, such as floods, erode a community's ability to recover from a single event and less able to absorb external shocks over time. The State

³⁶ Brenda Murphy, *National Flood Insurance: Management and Accountability in the Wake of Superstorm Sandy* (Hauppauge: Nova Science Publishers, Incorporated, 2016).
[https://ebookcentral.proquest.com/lib/\[SITE_ID\]/detail.action?docID=4586179](https://ebookcentral.proquest.com/lib/[SITE_ID]/detail.action?docID=4586179).

Flood Mitigation Revolving Fund Act lacks an explicit focus on addressing the ways disaster recovery and mitigation programs can exacerbate existing inequality.

In their 2018 white paper, Roberto Barrios and Colette Pichon Battle argue that disaster recovery efforts must contain specific goals to reduce long-term social inequalities. They say that "disaster mitigation and risk reduction must become synonymous with inequity reduction and equity making"³⁷ The authors argue that humans actions and systems in place long before disasters strike largely determine the scale of disasters. For Barrios and Battle, disasters are "lengthy historical processes that begin long before a hurricane makes landfall, or a seismic fault line releases its tension"³⁸ Because of these historical processes, the effects of disasters are often inequitably distributed among existing disadvantaged groups. This inequitable distribution increases vulnerability to future shocks and lessens resilience for people in these groups.

Disaster preparedness plans and recovery processes without equity as a central goal risk unintentionally exacerbating these historical trends and putting vulnerable populations at a further disadvantage. The government response to Hurricane Katrina provides ample examples of inequitable response to a disaster. One such example the authors provide is of public housing residents forced from their homes at gunpoint and "given one-way tickets to cities they had never been to" while wealthier homeowners "were offered the choice of evacuation" and their "homes were patrolled to ensure looting and other criminal activity was kept to a minimum".³⁹

³⁷ Barrios, Roberto and Pichon Battle, Colette. Equity in Disaster Recovery, Mitigation, and Adaptation. White paper. 2018.

³⁸ Ibid 2.

³⁹ Ibid 4.

Barrios, in his 2014 anthropological study on the aftermath of Hurricane Mitch in Southern Honduras, discusses the need for a more nuanced understanding of how the relationships between governments and NGO's shape the communities after disasters. Though communities are commonly considered static places defined by specific geographical boundaries, he argues that policymakers need to deepen their understanding of what defines a community. He says that they are " never static nor bounded...they are collectivities that a) are in constant state of emergence over time, and b) are shaped by dynamic, politically and epistemically charged relationships among assisting governments, aid agencies, and disaster-affected populations"⁴⁰ Communities have long histories and exist within a broader context. Power dynamics within the community and between the community and local, national, and international institutions affect the shaping of the community.

Barrios finds that power relationships not only shape communities but can also determine their ability to recover from disasters.⁴¹ In essence, governments and NGO's responding to disasters must accept their role in the long-term development of communities during both the pre- and post-disaster periods. Barrios finds that "implicit conceptualizations of community overlook the politically and epistemically charged relationships through which communities and their characteristics come into being."⁴² Two communities outlined in the study, Limon and Marcelino, demonstrate these findings. Since Marcelino had stronger relationships with the local government and international organizations, it was able to

⁴⁰Roberto E. Barrios, "'Here, I'M Not at Ease': Anthropological Perspectives on Community Resilience," *Disasters* 38, no. 2 (2014), 329-350. doi:10.1111/disa.12044.
<http://search.ebscohost.com/login.aspx?direct=true&db=tsh&AN=94777119&site=ehost-live&scope=site>.

⁴¹ Ibid 341.

⁴² Ibid 347.

recover while Limon was not. In Limon, these organizations were not responsive to resident needs and generally ignored the social aspects of recovery.

The Urban Institute recently undertook a study to understand how these issues of inequality manifest financially for people affected by natural disasters. They found that large-scale or severe disasters garner the most attention. Consequently, they receive the most aid. The people who often need the most assistance in the long-run, however, are those who experience medium-sized disasters. They tend to live in lower-income communities and communities of color. This finding relates to Battle and Barrios' assertion that disasters are part of a historical process and the unequal distribution of effects and severity of disaster on different actors in society is shaped well before the disaster occurs. The Urban Institute report has similar findings, arguing that aid needs to be directed to these communities.

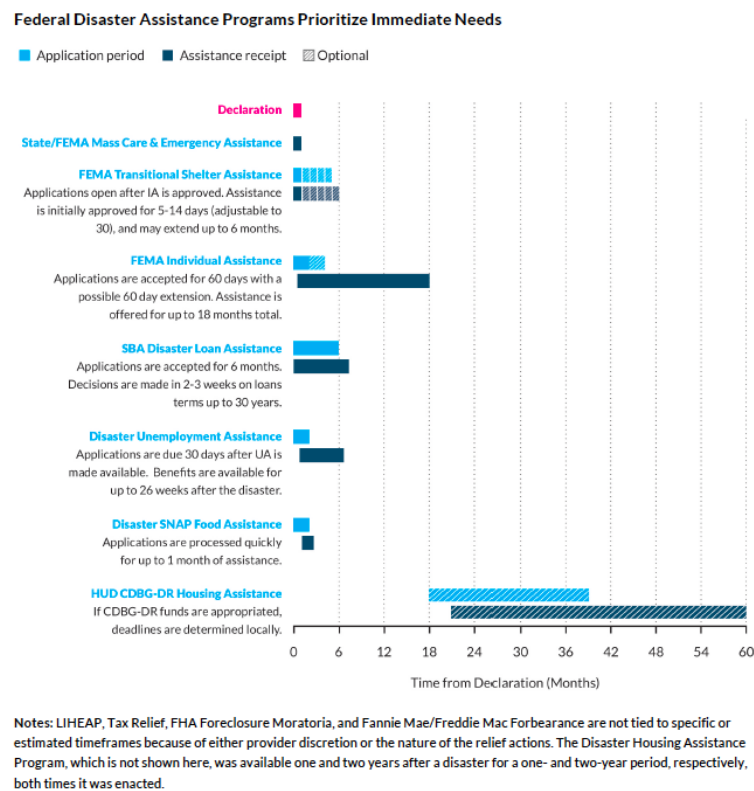
The Urban Institute's examination of how disasters affect financial health surfaced four main themes. By examining credit scores, credit debt, mortgage delinquency, auto debt, and bankruptcies, the authors found the following:

1. "Disasters lead to broad, and often substantial, negative impacts on financial health
2. The negative impacts of disasters persist, or even grow over time, for important financial outcomes.
3. Medium-sized disasters, which are less likely to receive long-term public recovery funding, appear to lead to larger and more consistently negative effects on financial health than large disasters.

4. Individuals in communities more likely to be struggling financially before disasters strike, such as low-income communities and communities of color, are often hardest hit by the disaster"⁴³

These findings are consistent with recent scholarship. It shows that a given community's pre-disaster ability to absorb external shocks is a reliable indicator of how disasters will affect a community. The following charts demonstrate how financial hardships are dispersed after a disaster.

Fig. 2

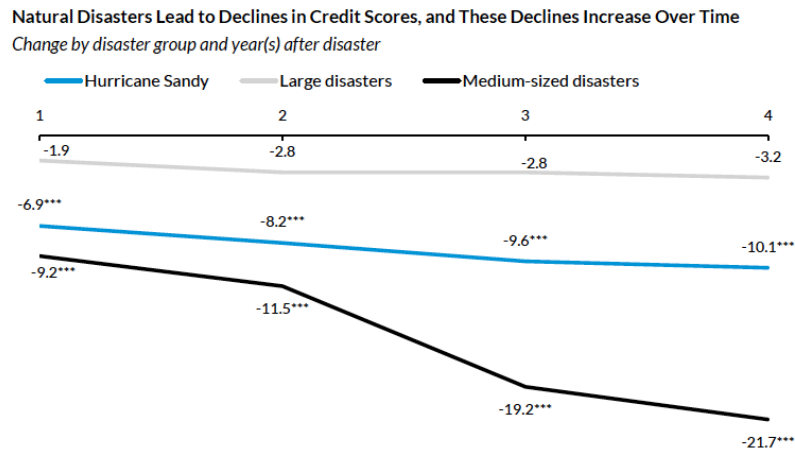


44

⁴³ Ratcliffe, Caroline, William J. Congdon, Alexandra Stanczyk, Daniel Teles, Carlos Martin, and Bapuchandra Kotapati. 2019. Insult to Injury. Washington, DC. <https://www.urban.org/research/publication/insult-injury-natural-disasters-and-residents-financial-health>

⁴⁴ Ibid 4.

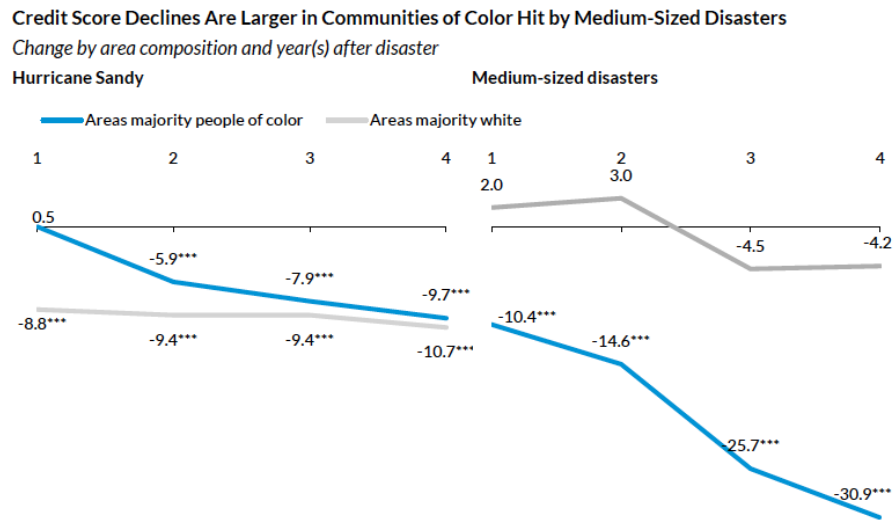
Fig. 3



Source: Urban Institute calculations based on credit bureau, FEMA, and ACS data.
 Notes: Values represent estimates of average differences in credit scores between individuals affected by the indicated disaster (or set of disasters) and matched individuals from unaffected areas. Effects are estimated separately for each disaster for each of the four years following the disaster.
 * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

45

Fig. 4



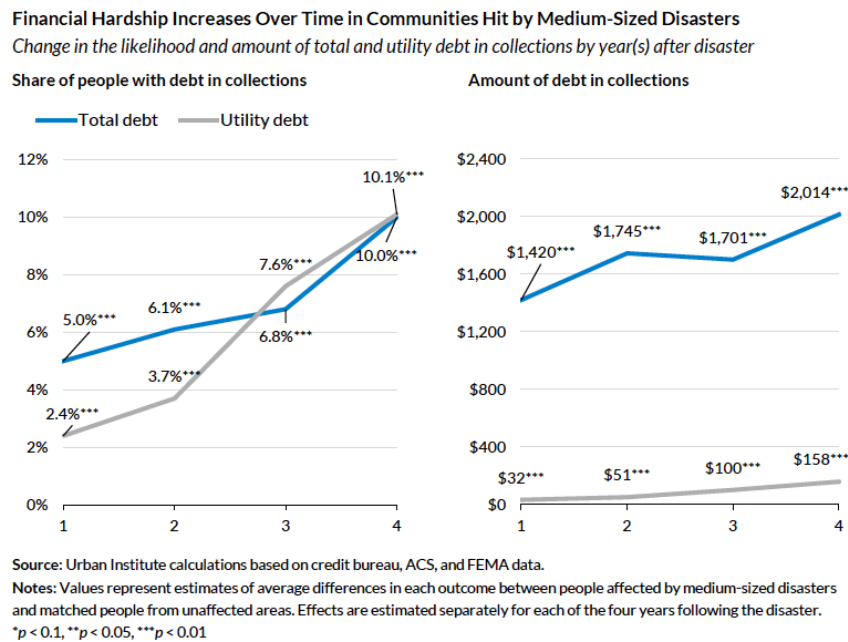
Source: Urban Institute calculations based on credit bureau, ACS, and FEMA data.
 Notes: Values represent estimates of average differences in credit scores between individuals affected by the indicated disaster (or set of disasters) and matched individuals from unaffected areas. Effects are estimated separately for each of the four years following the disaster.
 * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

46

⁴⁵ Ibid 20.

⁴⁶ Ibid 24.

Fig. 5



47

Financial hardships include decreased credit scores, communities of color, and timely access to disaster aid. Overall, they demonstrate a "pattern of results...broadly suggestive that disasters may be not only harmful for affected residents on average, but may also have the effect of widening already existing inequalities."⁴⁸

Several of the policy prescriptions from the report apply directly to the revolving loan fund and would increase its efficacy in combating long-term effects of disasters. These prescriptions include: providing communities struggling in the pre-disaster period with more funds, expanding access to post-disaster funds,⁴⁹ and incorporating financial health into state and local disaster recovery plans.⁵⁰ Adding these policy prescriptions into the Act would be consistent with its goal to increase mitigation efforts. Mitigation is ongoing work

⁴⁷ Ibid 26.

⁴⁸ Ibid VI.

⁴⁹ Ibid 35.

⁵⁰ Ibid 36.

rather than a one-time influx of funds. Including financial fitness courses of requirements into the loan process could improve financial stability in communities across the U.S.

If well implemented, the Act would increase capacity within communities and states to prepare for and recover from disasters. One of its strengths is that it is built on an over 30-year-old model that will be familiar to states. That would facilitate implementation. Besides, the \$6:\$1 return on investment will be attractive to states, since matching funds are required. If the Act incorporated some of the expanded understanding of communities that Battle and Barrios present and the policy prescriptions of the Urban Institute, it could serve as a model for disaster recovery programs in the future. Its model is already consistent with the nature of disasters; they are variable and ever-evolving. Encouraging states to build their internal capacity and find solutions that work for their particular conditions would ensure the long-term viability of the program. Additionally, states, more attuned to local conditions, would be able to deploy the funds more ably than the federal government.

While the framing of the program and concept is strong, the total costs and source of funding are unclear. Also, the allocation of funds to the states is based on the National Flood Insurance Program, which greatly needs mapping updates. According to the Act,

"(i) Fifty percent of the total amount made available under subparagraph (A) shall be allocated so that each participating State receives the percentage amount that is obtained by dividing the number of properties that were insured under the national flood insurance program in that State in the fiscal year preceding the fiscal year in which the amount is allocated by the total number of properties that were insured under the national flood insurance program in the fiscal year preceding the fiscal year in which the amount is allocated."⁵¹

⁵¹ 1ST SESSION, 115th Congress s. 1507.

Using NFIP flood maps as a basis for allocating funds may not provide adequate assistance to areas in need. Outdated maps would create a foundation for the loan fund that does not accurately reflect the current or projected need.

Political Analysis




As Chief of Staff to the Ranking Member Senator Sherrod Brown of the Senate Committee on Banking, you would be an excellent candidate to move this legislation forward in the Senate. In both chambers of Congress, there exists a bipartisan effort to effectively deal with the problem of flooding and the growing financial burden of the NFIP on taxpayers. Senator Bob Menendez introduced an NFIP reform bill in the 115th Congress called the Sustainable, Affordable, Fair, and Efficient (SAFE) National Flood Insurance Program Reauthorization Act of 2017. This proposal promoted sweeping reforms in the NFIP to make it more sustainable in the long-run. Moving legislation similar to the legislation from the House Finance Committee forward would help the NFIP achieve more financial stability.

Polling data:

In 2017, Pew Charitable Trusts contracted with Public Opinion Strategies to conduct surveys on attitudes about flooding. The surveys were illuminating in many ways, including the finding that respondents across party lines overwhelmingly supported flood policy reforms. It is important to note that the polling occurred in March 2017. This was before Hurricanes Harvey, Irma, and Maria in the fall of 2017, costly disasters that put the NFIP further in debt and raised the profile of flood disasters among Americans.

Fig. 6

Support Extends Across Party Boundaries

Proposals – Total Support by Party

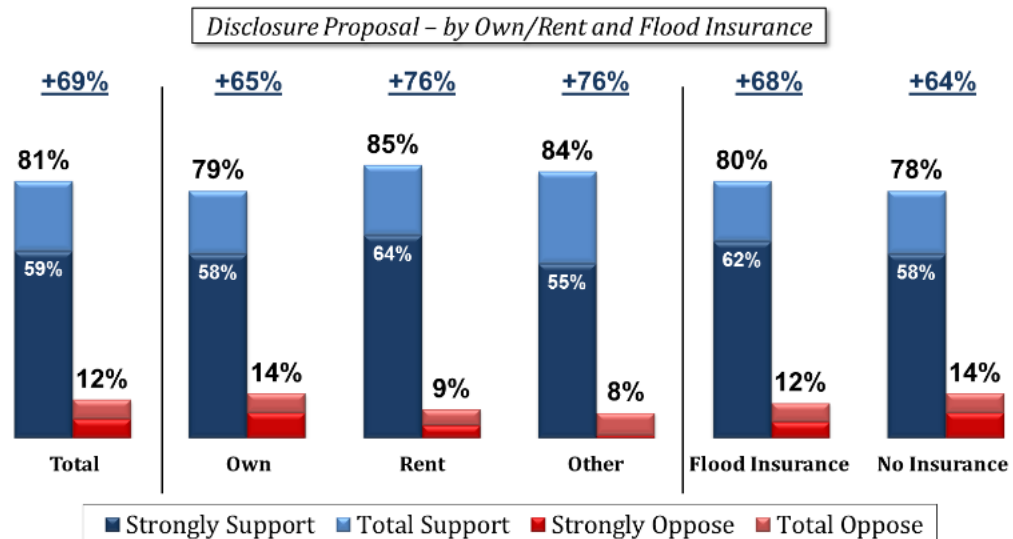
	Republican	Independent	Democrat
Disclosure	76%	78%	88%
Flood ready infrastructure	74%	78%	92%
Conservation buy-outs	66%	71%	85%
Community repetitive loss	61%	61%	71%

52

The poll found a consensus among Americans that the issue of flooding needed reform in four key areas. The top four findings of the polls are the following:

- "More than eight out of ten American voters support a single, national standard for disclosure of past flooding on a home or property during a sale.

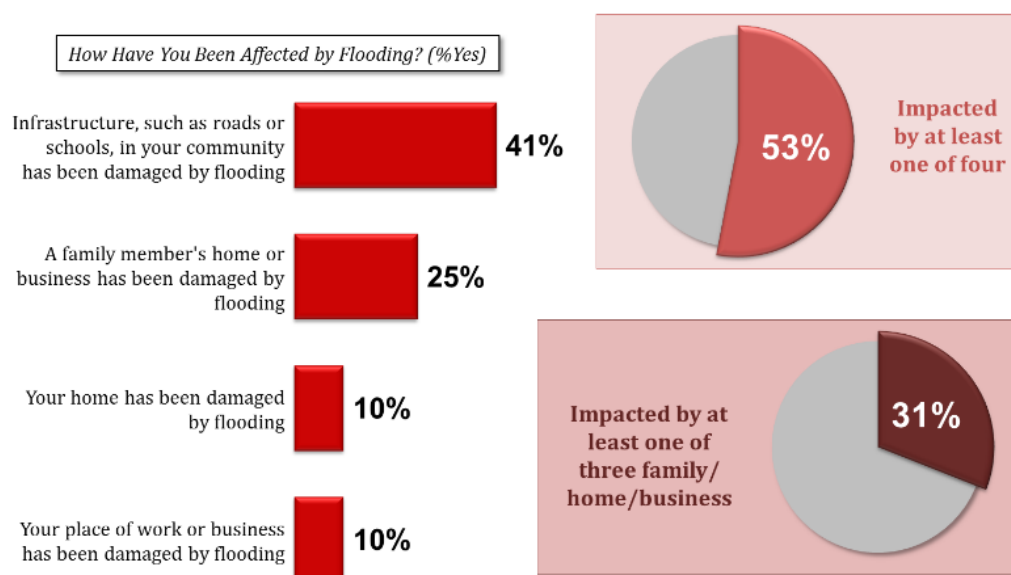
Fig. 7



⁵² McInturff, Bill and Lori Weigel. 2017. Pew National Flood Survey Memorandum. Public Opinion Strategies. https://www.pewtrusts.org/-/media/assets/2017/04/cp_poll_nearly_75_percent_of_voters_back_flood_reforms_memo.pdf

- More than eight out of ten American voters support future federal spending on construction in flood-prone areas is constructed to withstand the impacts of flooding better.
- Rather than rebuilding repeatedly flooded homes, three out of four American voters support prioritizing those properties located in environmentally sensitive areas for relocation for willing homeowners so they can purchase a new home in a safer area.
- Roughly two out of three American voters support requiring people to pay more for flood insurance if their communities with frequently flooded properties do not make investments to reduce the risk of flood damage."⁵³

Fig. 8



54

The data show that beyond being an effective way to curb flood damage, Americans generally support flood mitigation as a strategy to achieve that. Notably, 80% of Americans support increased construction costs in flood-prone areas. About 66% of respondents

⁵³ McInturff, Bill and Lori Weigel. 2017. Pew National Flood Survey Memorandum. Public Opinion Strategies. https://www.pewtrusts.org/-/media/assets/2017/04/cp_poll_nearly_75_percent_of_voters_back_flood_reforms_memo.pdf

⁵⁴ McInturff, Bill and Lori Weigel. 2017. Pew National Flood Survey Memorandum. Public Opinion Strategies. https://www.pewtrusts.org/-/media/assets/2017/04/cp_poll_nearly_75_percent_of_voters_back_flood_reforms_memo.pdf

affirmed that owners of repetitive loss properties should pay more for their flood insurance if they do not make any mitigation efforts.

Key Actors:

The key actors in promoting this legislation are the FEMA Administrator, co-sponsors of the House proposal, Senate Banking Committee Chair and Ranking Member, and Senator Bob Menendez who previously introduced legislation to address similar issues. Each plays a critical role in building support, momentum or consensus around the need for this legislation.

FEMA

In March 2017, the Subcommittee on Housing and Insurance of the House Financial Services Committee held a hearing with FEMA's Deputy Administrator of Federal Insurance and Mitigation, Roy Wright. They asked for his perspective on mitigation activities during the hearing. He said that his funds are limited and mostly designated to post-disaster recovery. What is available for mitigation he "prioritize[d] on repetitive loss, severe repetitive loss all moved to the top because that benefits the fund" and that "we could do more to help communities if we started taking on projects that were a bit bigger at the community scale."⁵⁵ Mitigation activities, particularly of repetitive loss properties, were recognized as the best long-term course of action within FEMA then.

Currently, the Acting Administrator is Pete Gaynor. According to his biography, before confirmation as the Acting FEMA Administrator, he was appointed the director of Rhode Island's Emergency Management Agency by Democratic Governor Gina Raimondo. That could indicate that he is willing to work with Democrats if he is not a Democrat

⁵⁵ Flood Insurance Reform: FEMA's Perspective: Hearing before the Subcommittee on Housing and Insurance, House, 115th Cong. 30 (2017) (Testimony of Roy Wright)

himself. He has over ten years of experience in emergency management and is a former Marine.

The recent upheaval within the agency could make it challenging to implement this new legislation. FEMA would need to be prepared to work in concert with the states to make this funding available to those in need. However, the timing of when the NFIP needs to be reauthorized, before the end of May 2019, creates a situation in which there will likely be public support for such legislation. Most floods over the past ten years occurred in the spring, and the experience will be fresh for many constituents. The agency could support popular legislation and work to improve its damaged reputation after the fall 2017 disasters.

The chief concerns for the Administrator would be how reconciling the two current flood mitigation and disaster preparedness programs with the revolving loan fund and ensuring there is adequate funding for increasingly costly natural disasters. Though the states will contribute matching funds, for FEMA it needs to be clear that they will have the funding they need to administer the NFIP as is and respond to extreme weather events of 2019.

House Co-Sponsors Charlie Crist (D-FL) and Roger Williams (R-TX)

In the House of Representatives, co-sponsors of the State Flood Mitigation Revolving Loan Fund Act Rep. Charlie Crist (D-FL) and Rep. Roger Williams (R-TX) are key political actors. Congressman Williams hails from a solidly Republican district in central Texas (TX-25), spanning between Austin and Dallas/Fort Worth. Conversely, Congressman Crist (FL-13) is from a solidly Democratic district on Florida's Gulf Coast. Though the districts are entirely different geographically and politically, Crist and Williams agreed that flood mitigation was a critical issue to pursue on behalf of their constituents. Unlike members of the Senate, who are less politically sensitive to the needs of small congressional

districts, House members cannot stray too far from the desires of their constituents. The fact that these members from such different districts recognize the importance of flood mitigation further support the survey findings that most Americans agree that flood mitigation is the strategy to follow to overhaul flood management.

Senate Committee on Banking, Housing, and Urban Affairs

The critical actors here are the Committee Chairman Mike Crapo (R-ID), Ranking Member Sherrod Brown (D-OH), and Sponsor of previous legislation Senator Bob Menendez (D-NJ). They each voted affirmatively on S. 3628 to extend the NFIP in 2018.⁵⁶ The bill originated from the Committee, sponsored by Republican Louisiana Senator John Kennedy. The Banking Committee has already demonstrated strong support and leadership within the Senate on the issue of flooding.

Interest Groups:

Another set of key actors are interest groups. The State Flood Mitigation Revolving Fund Act has demonstrated support from over 130 industry leaders including the American Institute of Architects, the National Groundwater Association, The Nature Conservancy, the Consumer Mortgage Coalition, and Enterprise Community Partners. In their letter of support, each organization affirms the need for flood mitigation flooding that is flexible, nimble, and adaptable to local conditions. This industry pressure to coalesce around mitigation as a long-term strategy could drive key policymakers in their decision processes.

Political Likelihood and Time Horizon

It is likely that the Act, as an amendment to the NFIP, will pass this year. The NFIP must be reauthorized this year, there is strong public, industry, and bipartisan support, and

⁵⁶ “S. 3628 — 115th Congress: National Flood Insurance Program Extension Act.” www.GovTrack.us. 2018. April 2, 2019, <<https://www.govtrack.us/congress/bills/115/s3628>>

the deadline for reauthorizing the NFIP falls squarely within the period when most flooding occurs. It is likely that the changes implemented as a result of this program would not have immediate effects for pre-disaster preparedness. Effects would likely be seen over the next 3 to 5 years as construction projects are designed and completed. The most immediate effects would be for post-disaster assistance in home repair and evidence of less damage from flooding in the following year.

Recommendation

The State Flood Revolving Fund deserves your support. If implementation for the program includes a strong focus on equity and expanding how communities access disaster funds, it could significantly reduce the costs for the National Flood Insurance Program. Mitigation activities, specifically community planning, floodplain management, physical improvements to homes, and green and gray infrastructure are needed to ensure the long-term security of communities.

The loan fund could serve the purpose of spurring economic activity, which is critical in medium-and-small-disaster communities that do not commonly receive large influxes of federal funds. More importantly, risk management and disaster recovery hinge on a community's ability to establish strong relationships and lines of communications they will later rely on when disaster strikes. Planning and building those relationships over time is the difference between a community that recovers and a community that does not.

As climate change makes extreme weather events more severe and frequent, the more communities will need to rely on structures put in place from mitigation activities to cope. A long-term, ongoing program rather than a one-time influx of funds will ensure support for this comprehensive risk management strategy.

As demonstrated by the recent cancelation of NFIP debt, flood insurance as currently configured does not work. Adequate funding for and a focus on mitigation will move our comprehensive risk management strategies into the future. While this revolving fund will not solve the entire flood insurance problem, over time, it will decrease the burden on the government when flood disasters occur. Mitigation is the strategy we should pursue.

Climate change makes future disasters uncertain, and every community needs to have the skills to respond and adapt. Disasters have an economic toll on communities and condemn financially fragile or weak communities to a further decline. Mitigation will make homes safer, save lives, protect livelihoods, and ensure long-term adaptability in a changing world. Flood insurance programs are only as good as their maps are accurate and prices are low. Providing an incentive for people to prepare and think comprehensively about the flood risk in their communities, rather than merely their personal risk, will save communities in the future.

CURRICULUM VITAE

LAURA K. MCDANIEL

SUMMARY

Nationality // United States of America

Born // July 19, 1988 // Washington, DC

WORK HISTORY

NEIGHBORWORKS AMERICA

July 2014 - Present

Manager of Creative Community Development // February 2019- Present

Program Manager, Project Reinvest: Neighborhoods // July 2017-February 2019

Senior Specialist, Project Reinvest: Neighborhoods // April 2016 – July 2017

Specialist, Community Grant Programs // December 2014 – April 2016

Program Assistant, National Foreclosure Programs // July 2014-December 2014

VERSONIX CORPORATION

Nov. 2013 - Jan. 2014

Business Systems, Support Analyst | Miami, FL

RESORTS WORLD BIMINI

Mar. 2013 - Oct. 2013

Executive Assistant and Coordinator | Miami, FL

US HOUSE OF REPRESENTATIVES: CONGRESSWOMAN DONNA

EDWARDS Jan. 2011 - Aug. 2012

Constituent Services Representative & Internship Coordinator | Washington, DC

EDUCATION

BACHELOR OF ARTS, History, University of Pennsylvania, Philadelphia, PA | 2010

COMMUNITY WORK

Girls on the Run DC | The Maryland Center | Special Olympics DC

SKILLS

R and Python | Fluxx Grant Management System | Salesforce | Excel | Powerpoint | Word